

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Amended) A device comprising:
a plurality of LEDs configured to produce light that includes at least two different spectra;
a material configured to receive the light emitted from the plurality of LEDs, and to display a color that is a combination of the at least two different spectra;
a memory to store at least one lighting program;
a processor configured to generate at least one control signal to control power delivered to one or more of the plurality of LEDs in response to execution of the at least one lighting program, the processor further configured to change the at least one control signal over time so as to produce from the device at least one dynamic lighting effect determined substantially by the at least one lighting program; and
a user interface adapted to receive a user input to control operation of the processor.
2. (Previously Presented) The device of claim 1 wherein the processor is configured to operate in one of a plurality of modes, each mode producing at least one dynamic lighting effect according to one or more parameters.
3. (Previously Presented) The device of claim 1 wherein the user interface consists of a single button.
4. (Previously Presented) The device of claim 1 wherein the user interface consists of two buttons.
5. (Previously Presented) The device of claim 1 wherein the user interface includes an adjustable input.

6. (Previously Presented) The device of claim 1 wherein the user interface includes at least one of a button, a dial, a slider, a knob, or a keypad.
7. (Previously Presented) The device of claim 1 wherein the at least one dynamic lighting effect comprises at least one color-changing effect including at least one of a color wash, a strobe, a fade, or a Holiday lighting effect.
8. (Previously Presented) The device of claim 1 wherein the device is configured as a consumer product.
9. (Previously Presented) The device of claim 1, wherein the device is configured as a replacement lighting device to engage mechanically and electrically with a conventional power adapter or socket.
10. (Previously Presented) The device of claim 1, wherein the device is configured as a light bulb.
11. (Previously Presented) The device of claim 1, wherein the device is configured as a landscape lighting device.
12. (Previously Presented) The device of claim 1, wherein the device is configured as a night light.
13. (Previously Presented) The device of claim 1, wherein the device is configured as a rope light.
14. (Previously Presented) The device of claim 1, wherein the device is configured as a household product.

15. (Previously Presented) The device of claim 1, wherein the device is configured as a pen.
16. (Previously Presented) The device of claim 1, wherein the device is configured to form at least part of a consumer electronic device.
17. (Previously Presented) The device of claim 1, wherein the device is configured as a glow stick.
18. (Previously Presented) The device of claim 1, wherein the device is configured as an ornamental or decorative lighting device.
19. (Previously Presented) The device of claim 18, wherein the device is configured as at least one icicle- shaped lighting device.
20. (Previously Presented) The device of claim 1, wherein the device is configured to form at least part of a toy or game.
21. (Previously Presented) The device of claim 20, wherein the toy is constructed and arranged as a lighted ball.
22. (Previously Presented) The lighted ball of claim 21, further comprising a ball housing, wherein:
 - at least a portion of the ball housing includes the material; and
 - the plurality of LEDs are arranged to illuminate the portion of the ball housing including the material.
23. (Previously Presented) The lighted ball of claim 22, further comprising:

at least one switch associated with the processor, wherein the at least one switch comprises at least one of a Hall effect switch, a motion sensing switch, a proximity detector, a sensor, a transducer, a capacitive switch, and an inductive switch,

wherein the processor is configured to be responsive to the at least one switch so as to generate the at least one control signal.

24. (Previously Presented) The device of claim 1, wherein the device is configured to form at least part of a wearable accessory.

25. (Previously Presented) The device of claim 24, wherein:
the device is at least partially enclosed in at least one housing;
at least a portion of the housing includes the material; and
the housing is formed as at least one of a piece of jewelry, a badge, a shoe, a sneaker, an article of clothing, a hat, and an ornamental device.

26. (Previously Presented) The device of claim 25, wherein the material includes an at least partially light-transmissive material having at least one of a pattern, an etched surface, and an image thereon.

27. (Previously Presented) The device of claim 25, wherein the material is formed into a shape of at least one of an icon, a logo, a branded image, a character, and a symbol.

28. (Previously Presented) The device of claim 1, further including at least one support for the plurality of LEDs, wherein the material is arranged with respect to the at least one support such that the light generated by the plurality of LEDs illuminates the material.

29. (Previously Presented) The device of claim 1, further including at least one sensor to monitor at least one detectable condition, wherein the processor is configured to generate the at least one control signal in response to the at least one detectable condition.

30. (Previously Presented) The device of claim 1, wherein the processor is configured to receive information from a network and process the information so as to generate the at least one control signal.
31. (Previously Presented) The device of claim 1, further including at least one timing device, wherein the processor is configured to respond to the at least one timing device so as to generate timed dynamic lighting effects.
32. (Previously Presented) The device of claim 31, wherein the at least one timing device includes a calendar, and wherein the processor is configured to respond to the calendar so as to generate seasonal dynamic lighting effects.
33. (Previously Presented) The device of claim 1, wherein the material comprises at least one of a semi-transparent material, a translucent material, a light-diffusing material and a transparent material.
34. (Previously Presented) The device of claim 33, wherein the material includes a pattern of defects configured to redirect the light passing through or along the material.
35. (Previously Presented) The device of claim 33, further comprising a housing, wherein the plurality of LEDs and the processor are supported by the housing, and wherein the material forms at least a portion of the housing.
36. (Previously Presented) The device of claim 35, wherein the housing is configured such that the plurality of LEDs and the processor are substantially enclosed by the housing.
37. (Previously Presented) The device of claim 35, wherein the user interface is integrated into the housing.
38. (Previously Presented) The device of claim 33, further comprising:

a first housing portion that substantially encloses at least the processor; and
a second housing portion, coupled to the first housing portion, that substantially encloses the at least two LEDs, wherein the material forms at least a portion of the second housing portion.

39. (Previously Presented) The device of claim 38, wherein the first housing portion includes a battery case configured to contain at least one battery to provide power to the device.

40. (Previously Presented) The device of claim 1, further comprising at least one optic.

41. (Previously Presented) The device of claim 40, wherein the at least one optic includes at least one detachable optic.

42. (Previously Presented) The device of claim 40, wherein the at least one optic includes one of a reflector, a diffuser, a filter, a lens, a secondary optic, a holographic lens, an anamorphic lens, and a patterned lens.

43. (Previously Presented) The device of claim 1, further comprising a power converter to provide power for at least one of the processor and the plurality of LEDs.

44. (Previously Presented) The device of claim 1, further comprising a power connection adapted to engage mechanically and electrically with a conventional light socket.

45. (Previously Presented) The device of claim 44, wherein the power connection includes at least one of a plug, a bi-pin base, and a screw base.

46. (Previously Presented) The device of claim 44, wherein:
the power connection includes a base adapted to engage mechanically and electrically with a conventional three-way socket; and

the user interface includes a switch of the conventional three-way socket,
wherein the processor is configured to generate the at least one control signal based at least in part on a setting of the switch of the conventional three-way socket.

47. (Previously Presented) The device of claim 1, wherein the processor is configured to monitor a power supply signal to the device and to generate the at least one control signal based at least in part on the monitored power supply signal.

48. (Previously Presented) The device of claim 47, wherein the user interface is configured to control at least power to the device.

49. (Previously Presented) The device of claim 48, wherein the user interface includes a conventional AC dimmer control to vary the power supply signal to the device, and wherein the processor generates the at least one control signal in response to operation of the conventional AC dimmer control.

50. (Previously Presented) The device of claim 49, wherein the processor is configured to produce from the device the at least one dynamic lighting effect in response to operation of the conventional AC dimmer control, including at least one of a dimming effect, a color-changing effect, and a light pattern effect.

51. (Amended) The device of claim 1, ~~further comprising a memory to store at least one lighting program, wherein:~~

~~the processor is configured to execute at least one lighting program stored in the memory and to generate the at least one control signal based on the executed at least one lighting program; and~~

the user interface is configured to allow a user to do at least one of the following:

select a desired lighting program stored in the memory for execution by the processor; and

modify the execution of at least one lighting program.

52. (Previously Presented) The device of claim 51, wherein at least one lighting program includes at least one adjustable parameter and is arranged to cause the device to produce the at least one dynamic lighting effect according to the at least one adjustable parameter when executed by the processor, and wherein:

the user interface is configured to allow the user to adjust the at least one adjustable parameter of the at least one lighting program.

53. (Previously Presented) The device of claim 51, wherein the user interface is adapted to output at least one of a logic high signal and logic low signal to the processor, and wherein the processor is configured to select at least one lighting program from the memory upon receipt of the signal output by the user interface.

54. (Previously Presented) The device of claim 51, wherein the user interface is adapted to output at least one of a logic high signal and logic low signal to the processor, and wherein the processor is configured to adjust at least one parameter of the at least one lighting program upon receipt of the signal output by the user interface.

55. (Previously Presented) The device of claim 51, wherein the processor is adapted to measure a duration of a signal output by the user interface, and wherein the processor is configured to adjust at least one parameter of the at least one lighting program upon receipt of a signal output by the user interface having a predetermined duration.

56. (Previously Presented) The device of claim 55, wherein the processor is configured to continually change the at least one parameter until the signal output by the user interface changes.

57. (Previously Presented) The device of claim 51, further comprising an analog to digital converter, wherein:

the user interface is configured to generate an analog signal;

the analog to digital converter is arranged to convert the analog signal to a digital signal; and

the processor is configured to generate the at least one control signal in response to the digital signal.

58. (Previously Presented) The device of claim 51, further comprising a housing, wherein the plurality of LEDs and the processor are supported by the housing, wherein the user interface is integrated with the housing, and wherein the material forms at least a portion of the housing.

59. (Previously Presented) The device of claim 58, wherein the at least one user interface includes at least one of a button, a dial, a slider, a knob, a switch, a variable switch, a variable selector, a keypad, a thumbwheel and a rotatable dial that forms a collar around the housing.

60. (Previously Presented) The device of claim 51, wherein the user interface is located remotely from the processor.

61. (Previously Presented) The device of claim 60, wherein the user interface and the processor are configured to communicate via at least one of an electromagnetic transmission, a radio frequency transmission, an infrared transmission, a microwave transmission, an acoustic transmission, a wire transmission, a cable transmission, and a network transmission.

62. (Previously Presented) The device of claim 51, further comprising at least one controller coupled to the processor and configured to control the plurality of LEDs in response to the at least one control signal, the controller including at least one of a pulse width modulator, a pulse amplitude modulator, a pulse displacement modulator, a resistor ladder, a current source, a voltage source, a voltage ladder, a switch, a transistor, and a voltage controller.

63. (Previously Presented) The device of claim 51, further comprising a display associated with the processor.

64. (Previously Presented) The device of claim 63, wherein the display includes at least one of an LCD screen, a plasma screen, a monochrome screen, a black and white screen and a color screen.

65. (Previously Presented) The device of claim 63, wherein the display is adapted to display information regarding at least one of: at least one lighting program; at least one setting of at least one lighting program; at least one parameter of at least one lighting program; available lighting programs; a time; a date; and control information.

66. (Previously Presented) The device of claim 51, wherein:
the processor is configured to monitor power to the device and to generate the at least one control signal based at least in part on the monitored power; and
the user interface is configured to control at least the power to the device.

67. (Previously Presented) The device of claim 66, wherein the processor is configured to select a different lighting program from the memory if the monitored power includes a power cycle having less than a predetermined duration.

68. (Previously Presented) The device of claim 67, wherein the memory includes at least one of a non-volatile memory and a battery-backed memory, and wherein the processor is configured to select from the memory a last executed lighting program if the monitored power includes a power cycle having greater than the predetermined duration.

69. (Amended) In a device comprising a plurality of LEDs configured to produce light that includes at least two different spectra, a memory to store at least one lighting program and a material configured to receive the light emitted from the plurality of LEDs and display a color that is a combination of the at least two different spectra, a method comprising an act of:

A) controlling a power delivered to one or more of the plurality of LEDs over time, in response to a user input, and execution of the at least one lighting program, so as to produce at least one dynamic lighting effect determined substantially by the at least one lighting program.

70. (Previously Presented) The method of claim 69, wherein the method further comprises an act of:

selecting one mode of a plurality of modes in response to the user input, each mode configured to produce at least one dynamic lighting effect according to one or more parameters; and

performing the act A) based at least in part on the selected one mode.

71. (Previously Presented) The method of claim 70, wherein the method further comprises acts of:

adjusting the one or more parameters of the selected one mode in response to the user input; and

performing the act A) based at least in part on the adjusted one or more parameters.

72. (Previously Presented) The method of claim 69, further comprising an act of:

B) providing the user input via only a single user operated device.

73. (Previously Presented) The method of claim 72, wherein the single user operated device includes a single button, and wherein the act B) comprises an act of:

providing the user input via only the single button.

74. (Previously Presented) The method of claim 69, further comprising an act of:

providing the user input via only two user operated buttons.

75. (Previously Presented) The method of claim 69, further comprising an act of:

providing the user input via at least one adjustable user operated device so as to provide at least one adjustable user input.

76. (Previously Presented) The method of claim 69, further comprising an act of:
providing the user input via at least one of a button, a dial, a slider, a knob, a switch, a variable switch, a variable selector, a keypad, a thumbwheel and a rotatable dial that forms a collar around the device.

77. (Previously Presented) The method of claim 69, wherein the at least one dynamic lighting effect comprises at least one color-changing effect including at least one of a color wash, a strobe, a fade, or a Holiday lighting effect, and wherein the act A) comprises an act of:

controlling the power delivered to the one or more LEDs, in response to the user input, so as to produce at least one of the color wash, the strobe, the fade, or the Holiday lighting effect.

78. (Previously Presented) The method of claim 69, further comprising acts of:
monitoring at least one detectable condition; and
performing the act A) based at least in part on the at least one detectable condition and the user input.

79. (Previously Presented) The method of claim 78, wherein the at least one detectable condition includes at least one environmental condition, and wherein the method comprises acts of:
monitoring the at least one environmental condition; and
performing the act A) based at least in part on the at least one environmental condition and the user input.

80. (Previously Presented) The method of claim 69, further comprising acts of:
receiving information from a network; and
processing the information so as to perform the act A).

81. (Previously Presented) The method of claim 69, wherein the device further includes at least one timing device, and wherein the method further comprises an act of:

B) performing the act A) in response to the at least one timing device and the user input so as to generate timed dynamic lighting effects.

82. (Previously Presented) The method of claim 81, wherein the at least one timing device includes a calendar, and wherein the act B) comprises an act of:

performing the act A) in response to the calendar and the user input so as to generate seasonal dynamic lighting effects.

83. (Previously Presented) The method of claim 69, further comprising acts of:

monitoring a power supply signal to the device; and

performing the act A) based at least in part on the monitored power supply signal.

84. (Previously Presented) The method of claim 83, further comprising an act of:

B) controlling at least power to the device via a user interface to provide the user input.

85. (Previously Presented) The method of claim 84, wherein the user interface includes a conventional AC dimmer control, and wherein the act B) comprises acts of:

varying the power supply signal to the device via the conventional AC dimmer control;
and

performing the act A) in response to user operation of the conventional AC dimmer control.

86. (Previously Presented) The method of claim 85, wherein the act A) comprises an act of:

producing from the device the at least one dynamic lighting effect in response to operation of the conventional AC dimmer control, including at least one of a dimming effect, a color-changing effect, and a light pattern effect.

87. (Previously Presented) The method of claim 69, wherein the device further comprises a power connection adapted to engage mechanically and electrically with a conventional light socket, and wherein the method further comprises an act of:

providing the user input via at least one user interface that controls at least power provided to the conventional light socket.

88. (Previously Presented) The method of claim 87, wherein the power connection includes at least one of a plug, a bi-pin base, and a screw base.

89. (Previously Presented) The method of claim 87, wherein:

the power connection is adapted to engage mechanically and electrically with a conventional three-way socket; and

the at least one user interface includes a switch of the conventional three-way socket, wherein the act A) comprises an act of:

controlling at least the power delivered to one or more of the plurality of LEDs based at least in part on a setting of the switch of the conventional three-way socket.

90. (Amended) The method of claim 69, wherein ~~the device further comprises a memory to store at least one lighting program, wherein the act A) comprises acts of:~~

~~B) executing at least one lighting program stored in the memory to control the power delivered to the one or more LEDs based on the at least one lighting program; and~~

C) performing one of the following acts in response to the user input:

C1) selecting a desired lighting program stored in the memory for execution in the act B); and

C2) modifying the execution of the at least one lighting program.

91. (Previously Presented) The method of claim 90, wherein the at least one lighting program includes at least one adjustable parameter, wherein the at least one lighting program is arranged to cause the device to produce the at least one dynamic lighting effect according to

the at least one adjustable parameter when executed, and wherein the act C2) comprises an act of:

adjusting the at least one adjustable parameter of the at least one lighting program via the user input.

92. (Previously Presented) The method of claim 90, wherein the user input includes at least one of a logic high signal and logic low signal, and wherein the act C1) comprises an act of:

selecting the desired lighting program from the memory in response to the at least one of the logic high signal and the logic low signal.

93. (Previously Presented) The method of claim 90, wherein the user input includes at least one of a logic high signal and logic low signal, and wherein the act C2) comprises an act of:

adjusting at least one parameter of the at least one lighting program in response to the at least one of the logic high signal and the logic low signal.

94. (Previously Presented) The method of claim 90, further comprising an act of:

measuring a duration of the user input,

wherein the act C2) comprises an act of adjusting at least one parameter of the at least one lighting program based on a predetermined duration of the user input.

95. (Previously Presented) The method of claim 94, wherein the act C2) comprises an act of continually changing the at least one parameter until the user input changes.

96. (Previously Presented) The method of claim 90, further comprising acts of:

providing the user input as an analog signal;

converting the analog signal to a digital signal; and

performing the act A) in response to the digital signal.

97. (Previously Presented) The method of claim 90, further comprising an act of:
D) providing the user input remotely from the device.

98. (Previously Presented) The method of claim 97, wherein the act D) comprises an act of:

providing the user input via at least one of an electromagnetic transmission, a radio frequency transmission, an infrared transmission, a microwave transmission, an acoustic transmission, a wire transmission, a cable transmission, and a network transmission.

99. (Previously Presented) The method of claim 90, wherein the act A) comprises an act of:

controlling the power to the one or more LEDs using at least one of a pulse width modulator, a pulse amplitude modulator, a pulse displacement modulator, a resistor ladder, a current source, a voltage source, a voltage ladder, a switch, a transistor, and a voltage controller.

100. (Previously Presented) The method of claim 90, wherein the device further comprises a display, and wherein the method further comprises an act of:

displaying information on the display regarding at least one of: at least one lighting program; at least one setting of at least one lighting program; at least one parameter of at least one lighting program; available lighting programs; a time; a date; and control information.

101. (Previously Presented) The method of claim 90, further comprising acts of:
monitoring power to the device;
performing the act A) based at least in part on the monitored power; and
controlling the power to the device via the user input.

102. (Previously Presented) The method of claim 101, further comprising an act of:
selecting a different lighting program from the memory if the monitored power includes a power cycle having less than a predetermined duration.

103. (Previously Presented) The method of claim 102, wherein the memory includes at least one of a non-volatile memory and a battery-backed memory, and wherein the act of selecting a different lighting program includes an act of selecting from the memory a last executed lighting program if the monitored power includes a power cycle having greater than the predetermined duration.

104. (Previously Presented) The device of claim 1, wherein the processor is configured to automatically change the at least one control signal over time upon the device being turned on.